Hy
3ell
1635

P.S

RAW SEQUENCE LISTING   DATE: 03/27/2001
PATENT APPLICATION: US/09/490,609B   TIME: 07:45:50

Input Set : A:\3170SeqList.txt
Output Set: N:\CRF3\03272001\I490609B.raw

ENTERED

```
 1  <110> APPLICANT: Bunch, Roderick T.
 2         Morris, Dale L.
 3         Curtiss, Sandra W.
 4         Rodi, Charles P.
 6  <120> TITLE OF INVENTION: BIOMARKERS AND ASSAYS FOR CARCINOGENESIS
 8  <130> FILE REFERENCE: 3170/00/PCT
10  <140> CURRENT APPLICATION NUMBER: US/09/490,609B
11  <141> CURRENT FILING DATE: 2000-01-25
13  <150> PRIOR APPLICATION NUMBER: US 60/118 078
14  <151> PRIOR FILING DATE: 1999-01-29
16  <160> NUMBER OF SEQ ID NOS: 580
19  <210> SEQ ID NO: 1
20  <211> LENGTH: 271
21  <212> TYPE: DNA
22  <213> ORGANISM: Rattus norvegicus
24  <400> SEQUENCE  1
26  gatccaccta acaagaagcc caaagtctag acgtcgcctt ttgcctgtga tgatttggta   60
28  ctgcagggta gccagcgtct gtctgatact aagtggtaaa tgaactacgt gtttttatgg  120
30  gaaagaggaa tattttgta atcatcaaat ttatactagc tatctgggtg ttagcatatc  180
32  tagtgattat gagtctagaa taattttttac atattttat attattgtcc tctcagttac  240
34  tgaatggatg gaaaacaatc atgttggttt a                                 271
37  <210> SEQ ID NO: 2
38  <211> LENGTH: 206
39  <212> TYPE: DNA
40  <213> ORGANISM: Rattus norvegicus
42  <400> SEQUENCE  2
44  gatccaagac cctcactgac tccgtctgaa tttttggttt cagtttggta cccgaagctg   60
46  cgcgtcacgt ctgcttatta cttgtttgac tgttggaatt gtttgtcttc ttttgtgacct  120
48  gactatgctt ttctggaacgt gttgtgtctg ttagtgtctt tttgacttt gtttcgtgtt  180
50  tgaattgga ctgacgactg tgttta                                        206
53  <210> SEQ ID NO: 3
54  <211> LENGTH: 74
55  <212> TYPE: DNA
56  <213> ORGANISM: Rattus norvegicus
58  <400> SEQUENCE: 3
60  gatccatgat actgcatgtc agattttcat gtgaatattc tgattgttcg atgttgtttg   60
62  cctgtttttg ttta                                                    74
65  <210> SEQ ID NO: 4
66  <211> LENGTH: 207
67  <212> TYPE: DNA
68  <213> ORGANISM: Rattus norvegicus
70  <400> SEQUENCE: 4
72  gatccatggt caaacaatac cgagtgatgg agacattttc acttttacga gacgtgaacc   60
74  tattcgggtg tgtggccaaa tcatcccttg gaattttcca ctgcttatgt tcatttggaa  120
76  gatacccctg ccctcagctg tgggaacaca gtggtcgtca agccagcaga gcaaactcct  180
78  ctcactgctc ttcacatggc atcttta                                     207
81  <210> SEQ ID NO: 5
```

RAW SEQUENCE LISTING   DATE: 03/27/2001
PATENT APPLICATION: US/09/490,609B   TIME: 07:45:50

Input Set : A:\3170SeqList.txt
Output Set: N:\CRF3\03272001\I490609B.raw

```
 82 <211> LENGTH: 147
 83 <212> TYPE: DNA
 84 <213> ORGANISM: Rattus norvegicus
 86 <400> SEQUENCE: 5
 88 gatccacaat gggcagaagt tagtggttcc caggattgct gggagcatgg cactgtcaaa    60
 90 tcacttccgc tctgaagatt tattagacgt tgacactgct gccggaggat tcagcagaga   120
 92 caggggctga actactgtct cccttta                                       147

 95 <210> SEQ ID NO: 6
 96 <211> LENGTH: 366
 97 <212> TYPE: DNA
 98 <213> ORGANISM: Rattus norvegicus
100 <220> FEATURE
101 <221> NAME/KEY: unsure
102 <222> LOCATION: (1)..(366)
103 <223> OTHER INFORMATION: unsure at all n locations
105 <400> SEQUENCE: 6
107 gatccatggt ctcagagatt ccagagaaga aagcgatgga aatcgctgag gctttgggca    60
```
W--> 109 gaattcctcn agacggtcct gtggcngcta caccngggaa ctagaccatc gaaccttgca   120
```
111 aggacacta ttcttgtcaa atggctaccc caaaacgatc tgcttggtca tccaaaggct   180
113 cgggggtta tcacacactc ccggttccca tggtatttat gaaggaatat gcaatggggt   240
115 tcccaatggt gatgatgccc ttgtttggtg atcagatgga caacgccaag cgcatggaaa   300
117 ctcggggatc tggggtgacc ctgaatgtcc tgaaaatgac tgccgatgat ttggaaaacg   360
119 ccctta                                                             366

122 <210> SEQ ID NO: 7
123 <211> LENGTH: 156
124 <212> TYPE: DNA
125 <213> ORGANISM: Rattus norvegicus
127 <220> FEATURE
128 <221> NAME/KEY: unsure
129 <222> LOCATION: (1)..(156)
130 <223> OTHER INFORMATION: unsure at all n locations
132 <400> SEQUENCE: 7
```
W--> 134 gatccactga agncatcctt gaccgatagg natcaccccg gacttcgatg caccagaggg   60
W--> 136 cgcaaagcat gagggctggg agaggaccnn ggtgtttgcc tggccagtgt gaagcagtca   120
```
123 caaggaggtg actggacaaa ctagcatgtg gcctta                            156

141 <210> SEQ ID NO: 8
142 <211> LENGTH: 103
143 <212> TYPE: DNA
144 <213> ORGANISM: Rattus norvegicus
146 <400> SEQUENCE: 8
148 gatccaggca agttgggaga atatgacgct agtatcataa acagggtgcc aggaaaatcc    60
150 actattacca aacattccaa tgactcctat agctgttgcc tta                    103

153 <210> SEQ ID NO: 9
154 <211> LENGTH: 127
155 <212> TYPE: DNA
156 <213> ORGANISM: Rattus norvegicus
158 <220> FEATURE
159 <221> NAME/KEY: unsure
160 <222> LOCATION: (1)..(127)
```

```
      RAW SEQUENCE LISTING              DATE: 03/27/2001
      PATENT APPLICATION:  US/09/490,609B      TIME: 07:45:50

      Input Set : A:\3170SeqList.txt
      Output Set: N:\CRF3\03272001\I490609B.raw


   161 <223> OTHER INFORMATION: unsure at all n locations
   163 <400> SEQUENCE: 9
   165 gatccaaaag ttcttcaggc aacacgtcct tcagtctgga ggctaactct aaataqtqtq    60
W--> 167 accatgtang acagagtaaa gggcagggag tgaattagag aagaagttgg aattggtctg   120
   169 gggatta                                                             127
   172 <210> SEQ ID NO: 10
   173 <211> LENGTH: 400
   174 <212> TYPE  DNA
   175 <213> ORGANISM: Rattus norvegicus
   177 <220> FEATURE
   178 <221> NAME/KEY: unsure
   179 <222> LOCATION: (1)..(400)
   180 <223> OTHER INFORMATION: unsure at all n locations
   182 <400> SEQUENCE: 10
   184 gatccaaaag gattggccga tcagtttcta ttcgaatatt ccagcaatta cggacaaqct    60
W--> 186 cntctgccac ttttagttgg gttacaccaa gagttatctc tctatggtcg gctcctgctg   120
   188 tacttctgca aaaccaactg tgtgcttttt gaaggagaga ctccagatga aacagttatc   180
   190 acttctcacc actatgtcaa acagagtctg ctcacaatat gctgcatatg gaaaggagaaa   240
   192 atcaaggatg agccatctca taaaactagc ccaaaaagta ccaactgcta acctggagga   300
   194 tgtttgcca ctcgctgaag accttactga aatcctgtcc agatgttgta agtctacctc   360
   196 agaagactgc atggccagag agctgcctga acacacatta                          400
   199 <210> SEQ ID NO: 11
   200 <211> LENGTH: 57
   201 <212> TYPE  DNA
   202 <213> ORGANISM: Rattus norvegicus
   204 <400> SEQUENCE: 11
   206 gatccagaaa cttctgctaa gacttcttca atggaaaaga gctgaataag agcatta        57
   209 <210> SEQ ID NO: 12
   210 <211> LENGTH: 231
   211 <212> TYPE  DNA
   212 <213> ORGANISM: Rattus norvegicus
   214 <220> FEATURE
   215 <221> NAME/KEY: unsure
   216 <222> LOCATION: (1)..(231)
   217 <223> OTHER INFORMATION: unsure at all n locations
   219 <400> SEQUENCE: 12
   221 gatcccagt ttcatcagtg tccctgtagc tttctgcagc actcttgggc tggacagagc    60
W--> 223 tcctggaaac atttcaaaag atcactnccc ttaccctgcc cttccttggg gtccacctgg   120
   225 tgctccagtg ggattgcaca agaatgtctg tgcagaagca aagacagcct ttttaccagt   180
   227 gtgggccaaag ccttcacaca tacgggtacc tgttttacac tgtgatgttt a            231
   230 <210> SEQ ID NO: 13
   231 <211> LENGTH: 295
   232 <212> TYPE  DNA
   233 <213> ORGANISM: Rattus norvegicus
   235 <220> FEATURE
   236 <221> NAME/KEY: unsure
   237 <222> LOCATION: (1)..(295)
   238 <223> OTHER INFORMATION: unsure at all n locations
   240 <400> SEQUENCE: 13
```

```
        RAW SEQUENCE LISTING              DATE:  03/27/2001
        PATENT APPLICATION:  US/09/490,609B     TIME:  07:45:50

          Input Set : A:\3170SeqList.txt
          Output Set: N:\CRF3\03272001\I490609B.raw


      242 gatcccacag caaagttgcc ttttgaacaa cacaagttgc tgcagcattt gaaacaccaa    60
      244 caqcagtgca tacgaacaag ataagtggca gggccatgcc aagccttcac cttccaaggg   120
W--> 246 ctaaataggc caccaagtga cagcaaaatg gtgccaaagn tctactacag cactgctaag   180
      248 aaccaacagc tgagaagccg gatagcttct gacctagagt gcaacacacct aagtcctcaa   240
      250 ctggacctty ataqccaaca aatgggagca gtgtcttgtc tcttttagcac cttta         295
      253 <210> SEQ ID NO: 14
      254 <211> LENGTH: 188
      255 <212> TYPE: DNA
      256 <213> ORGANISM: Rattus norvegicus
      258 <400> SEQUENCE: 14
      260 gatcccggag gccgaggcta gagactattc tgtcactcct ggtatccctt caqaagttgc    60
      262 ctgtccgatt gcctgaagga gaagcactgc agtgtttgac agagccgtgct atgagttggc   120
      264 aagatagage acgacaagct ttagccacag atgaactgtc ttctgccctg gccaaactct   180
      266 ctgtctta                                                             188
      269 <210> SEQ ID NO: 15
      270 <211> LENGTH: 194
      271 <212> TYPE  DNA
      272 <213> ORGANISM: Rattus norvegicus
      273 <400> SEQUENCE: 15
      276 gatccctt cccagtgata cccagatttg atttgattgc ccgttttggt ccatgttggt    60
      278 atagttgga atgtgaagca atatcagaga accatgtttt ctctcaggac acttttctgtg   120
      280 ctggagtggc acaggctgtc atgctcagca tagatgctcg ctctgctaca ctagtccttc   180
      282 aaagtcgtgg ctta                                                       194
      285 <210> SEQ ID NO: 16
      286 <211> LENGTH: 164
      287 <212> TYPE  DNA
      288 <213> ORGANISM: Rattus norvegicus
      290 <220> FEATURE
      291 <221> NAME/KEY: unsure
      292 <222> LOCATION: (1)..(164)
      29  <223> OTHER INFORMATION: unsure at all n locations
      295 <400> SEQUENCE: 16
W--> 297 gatccngact gagaagagtn tcaacacggt cccctacata gtgggcttca acaagcaaga    60
      299 gtttggctgg atcattccaa cgatgatggg aaatctactc tctgaaggca gaatgaatga   120
      301 gaaaatggcc agttcttttct tgaagaggtt caqccctaac ctta                     164
      304 <210> SEQ ID NO: 17
      305 <211> LENGTH: 43
      306 <212> TYPE  DNA
      307 <213> ORGANISM: Rattus norvegicus
      309 <220> FEATURE
      310 <221> NAME/KEY: unsure
      311 <222> LOCATION: (1)..(43)
      312 <223> OTHER INFORMATION: unsure at all n locations
      314 <400> SEQUENCE: 17
W--> 316 gatccctgag atgccctaga tcaatgncat gactatgaca tta                       43
      319 <210> SEQ ID NO: 18
      320 <211> LENGTH: 426
      321 <212> TYPE  DNA
      322 <213> ORGANISM: Rattus norvegicus
```

RAW SEQUENCE LISTING   DATE: 03/27/2001
PATENT APPLICATION: US/09/490,609B   TIME: 07:45:50

Input Set : A:\3170SeqList.txt
Output Set: N:\CRF3\03272001\I490609B.raw

```
 24 <400> SEQUENCE  18
 26 gatccgtggc ccatgagaac acatccaatg ctgagacctg tggaggagtc agcaactgag    60
 28 attgtaaggg tcagcagggt tagaccacat gggactgtag ctggccacag ctaagactca   120
 30 gaagaccata ggcctgacac aggatgtcag tcaatgtcac agaatggatt tgaacactct   180
 32 gtagtggact gtgtacggct aaacacaggg actcttctac aaccagggaa tgctgaagct   240
 34 gttctctgtg aaggccacac ccctgagtgt ccagtccttc cctgggctcc tcatatgaga   300
 36 gctaagcatt gtctgatgtg gtgaccctgc agggacagcc ctttgttctt gacagccaca   360
 38 gccttcagtg agcctggatt tcctgtgtgc tttcctagga agttctccct ggatgactgc   420
 40 tgggta                                                              426
 43 <210> SEQ ID NO: 19
 44 <211> LENGTH: 212
 45 <212> TYPE: DNA
 46 <213> ORGANISM: Rattus norvegicus
 48 <400> SEQUENCE 19
 50 atcccttttg tccgcggggg aaacagagcc gttgaccatg gttgcaacgg gcagtttgag    60
 52 caggtagaac acggcaaaca tttcagagtt gctggacggt ggctctcacc ctgggagtct   120
 54 gctgagtgat ttcgactact gggattatgt cgtccccgag cccaacctca acgaggtggt   180
 56 gttttgatgtg acaacatgcc agaatttggt ta                                212
 57 <210> SEQ ID NO: 20
 58 <211> LENGTH: 215
 59 <212> TYPE: DNA
 60 <213> ORGANISM: Rattus norvegicus
 64 <400> SEQUENCE 20
 66 gatccgagtg tggttccacc ctgctggctc tgtgactgcg gggcttggat ttataacagg    60
 68 agaggaaggc ggcggctgat cttctaggct gcaaacgggt gtctctggcc atccctggat   120
 70 acttctctga gggagacagg cgtcttcaca gttgtacttg tagccttcac aggtcaggct   180
 72 gcgtctgctc actcctgtcc attgtacgtg cgtta                              215
 75 <210> SEQ ID NO: 21
 76 <211> LENGTH: 286
 77 <212> TYPE: DNA
 78 <213> ORGANISM: Rattus norvegicus
 80 <400> SEQUENCE 21
 82 gatcctaaag gcggtcacat ggttcctgct gaccaaggga catggctctg aagatgatga    60
 84 ggctgttgc tcagcaggag tagctgagct gagctggcct ggaggcctg gagcctggag   120
 86 gccctggatt agggcccagg atgcaggtgc taatgtctat ccccggcgct cttcttcccg   180
 88 actctaccat ggggatgtaac tccaggaccc ctgccatctc cggtaccaaa agactgtggc   240
 90 ttccctgtct actcagaaat cagttctact tcgtaaacag tgttta                  286
 92 <210> SEQ ID NO: 22
 94 <211> LENGTH: 227
 95 <212> TYPE: DNA
 96 <213> ORGANISM: Rattus norvegicus
 98 <220> FEATURE
 99 <221> NAME/KEY  unsure
400 <222> LOCATION  (1)..(227)
401 <223> OTHER INFORMATION: unsure at all n locations
403 <400> SEQUENCE 22
405 gatcctaagg agtaaattga gaaaccaaga gtgggggaga tgaggcgcaa cccaagaaag    60
407 atgctgtgat ctctgaaggg acaactctaa aatcaaagtg ctggaaggtt ggctccatcc   120
```

W--> 409 tgagntnctc ttcgcattgc aagtgttgtg tttgtcctgt gccttatgct cttctctcat   180

F-YI

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY   DATE: 03/27/2001
PATENT APPLICATION: US/09/490,609B   TIME: 07:45:51

Input Set : A:\3170SeqList.txt
Output Set : N:\CRF3\03272001\I490609B.raw

```
L:109  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6
L:134  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:136  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:167  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:186  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10
L:223  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:246  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:297  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16
L:316  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:409  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22
L:426  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23
L:453  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25
L:463  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25
L:482  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26
L:539  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30
L:568  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31
L:627  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:662  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:783  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44
L:802  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45
L:819  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46
L:836  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:47
L:877  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49
L:896  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50
L:902  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50
L:919  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51
L:921  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51
L:936  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52
L:940  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52
L:942  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52
L:957  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53
L:959  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53
L:961  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53
L:976  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54
L:980  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54
L:997  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55
L:999  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55
L:1001 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55
L:1016 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56
L:1020 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56
L:1022 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56
L:1037 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57
L:1041 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57
L:1043 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57
L:1058 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58
L:1060 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58
L:1075 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59
L:1077 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59
```

VERIFICATION SUMMARY   DATE: 03/27/2001
PATENT APPLICATION: US/09/490,609B   TIME: 07:45:51

Input Set : **A:\3170SeqList.txt**
Output Set: **N:\CRF3\03272001\I490609B.raw**

L:1079 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59
L:1094 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60